broadened view does not have in it much of actuality, then theory becomes complex. Then it is too utterly difficult to understand how it is that the best students so often reach the view that the conifer bract and scale are the end results of a leaf or bract, and an axillary shoot. Certainly the short shoot view of bract and scale is a simple view. It relates the cone to the flower in fairly understandable manner; it explains Voltzia as the modified form of the older fertile shoot, and easily undergoing further reduction. It leaves the conifers related to other seed plants in somewhat the same manner as the ungulates are found apposed to other mammalians as the result of digit reduction.

CEREMONY ATTENDING THE OPENING OF DOWN HOUSE, THE HOME OF CHARLES DARWIN

By Dr. JOSEPH LEIDY, II

PHILADELPHIA

THE formal opening of Down House as a public memorial took place on June 7 in the presence of a large and distinguished party as the guests of the president, Sir William Bragg, and officers of the British Association.

Dr. Joseph Leidy, II, represented the American Association for the Advancement of Science; Dr. Edward B. Poulton, of Oxford, and Dr. Henry Fairfield Osborn, president, represented the American Museum of Natural History. The ceremony was attended by upwards of four hundred members of the British Association, friends and representatives of other scientific societies.

Down House lies in the midst of beautiful gardens and orchards in the Kentish Downs, about fifteen miles from London Bridge.

The ceremony was held on the lawn under the presidency of Sir William Bragg, at whose invitation Mr. Buckston Browne formally presented the house into the keeping of the British Association. In the course of a brief address he said that Darwin, like Shakespeare, required no monument. But it might be permitted to them to treasure, preserve and keep sacred always the house that sheltered Darwin—the things in it that he had handled and the grounds he had walked upon. It was this which he (Mr. Buckston Browne) was extraordinarily privileged to accomplish, assisted by Major Leonard Darwin, the surviving son of Darwin, and other members of the Darwin family.

Sir William Bragg thanked Mr. Buckston Browne for his national gift, and accepted it on behalf of the association.

The principal address was delivered by Sir Arthur Keith, F.R.S., on "Science and Sentiment."

Thanks to the munificence of Mr. Buckston Browne we are to-day able to throw open to all the world the home of an English gentleman, Charles Darwin. Henceforth it becomes a national possession entrusted to the care of the British Association for the Advancement of Science. Its rescue was made just in time. In another generation Darwin's home would have gone the way that all human homes go sooner or later; wide-spread decay had set in and Greater London, spreading into Kent, would have eaten up this retreat from which Darwin spoke to the great world of his day.

All danger of such a fate overtaking one of the historical homes of England is now past. Mr. Browne has not only made Down House a national gift; he has repaired it, inside and out, top and bottom; at great personal pains and expense he has restored the chief rooms of the house to the state they were in when Darwin occupied them; thanks to the generosity of the Darwin family and to their ever-ready cooperation, he has been able to place in their appropriate niches pieces of furniture actually used by Darwin and to exhibit personal relics of the great naturalist. Further, he has secured his gift against the ravages of time by an ample endowment for maintenance. Thus to-day a dream which some have dreamt has come suddenly and unexpectedly true. In this little area of the chalky uplands of Kent the nineteenth century will continue to bloom and remain an oasis where our successors, worn with the cares of centuries, may repair for refreshment and inspiration.

Why should this desirable home be withdrawn from active service in the community and be dedicated to an altogether special purpose? It is because there is here enshrined the personality of a great man. Darwin's home is one which we are justly proud to claim as English and which we are convinced our children's children will value as we do. I have no doubt they would have held this generation blameworthy if it had made no effort to save it for them. Our distant successors, I am sure, will be proud of it not so much perhaps on account of the books which were composed and written within its walls but rather, I suspect, because of the personality of the man who wrote them. In the ultimate scale of reckoning, men will always place goodness above greatness; Darwin's was both good and great. It is right that we should stress now this personal aspect of Darwin's life, for the character of no man has been so wilfully travestied in his own century as well as in ours. He was an English gentleman. We have the best of reasons for believing he came of a stock which has lived for more than three thousand years

on English soil; that seems a sufficiently long period to make him English to the core. He was gentle and modest almost beyond parallel; loving and loved in this his home as few men have been; thoughtful for his community, just and charitable even to those who sought to brand him as an enemy of mankind. Down House was an abode of goodness as well as of genius; that is one reason why it should become a national heritage.

It is true that were it merely an English home of the nineteenth century we wished to perpetuate there is a wealth of choice at our disposal, but hardly one, I think, which sheltered such a gifted family as grew up within these walls. We are moved to-day, however, by a purpose which is not bounded by national frontiers. We are honored to-day by the presence of representatives of other countries besides our own. France has sent as her delegate one of her most distinguished men of science—Professor R. Anthony, of the Museum of Natural History, Paris. Our sister society, the American Association for the Advancement of Science, and also the Philadelphia Academy of Natural Sciences, are represented by Dr. Joseph Leidy, whose uncle was the close friend of Huxley and of Darwin. Only an engagement of the most pressing nature has prevented the distinguished president of the American Association—Dr. Henry Fairfield Osborn—from being with us to-day. All our colonies are represented, for the British Association draws its membership from all parts of the empire. Our association represents the commonality of the British peoples.

Thus our ceremony to-day has an international character, and it is right that this should be so. The truth is that Darwin, quite unwittingly, made these few acres of Kentish uplands an international possession. In the place where we are now met, in these grounds, gardens, orchards, meadows and walks and within these walls, were slowly hammered hot from fact new doctrines which radiating out from here slowly penetrated to the ends of the earth, giving humanity a new interpretation of living things and of its relationship to them. Human thought was forcibly and permanently thrust from its old time-honored ruts.

Even more important than his teaching was the manner in which Darwin taught the world from Down. He permitted the bare, unbusked truth to speak for itself; he went only so far as the light of reason would carry him. Only men who teach thus continue to teach for all time. Down House, then, is not a national but an international possession—a common heritage for truth-seekers of all countries and of all centuries.

Mr. Buckston Browne in conveying his gift to the British Association made no stipulations; he did not wish Darwin's home to be bound by the dead hand of the law. He rightly trusted to the good sense of the succession of men who will preside over the affairs of the British Association to carry out certain expressed personal wishes which were (1) that Down House and grounds should be maintained as nearly as possible in the state given to them by Darwin; (2) that the public, irrespective of nationality or of creed, should be given free access to the public rooms and to the grounds. And one condition we have made, that the name of Buckston Browne be associated with the gift—in memory of the donor's beloved son and grandson.

There was another wish expressed by the donor and, to my way of thinking, a very important one. It was the wish that the Council of the British Association would use Down House to advance the cause of science in what way it thinks best. This implied condition enhances the quality of the gift, for no one desires to see British land thrown into permanent fallow or property estranged from lawful use. I shall justify the place of sentiment in science presently but we need not sacrifice more to sentiment than can be fully justified. In what way Down may best serve the advance of knowledge is a matter which will take time to determine. If any place can provide inspiration for research it should be Darwin's own gardens. No doubt, if the council of the association could catch a young Darwin and place him here, history would repeat itself, but then, if the law of chance continues to hold, it may have to wait a millennium before such a treasure is secured. Meantime the council has resolved to install its trusted permanent secretary as resident officer at Down House.

I have said something of Darwin's personality and very little of his science; I have spoken of Down House as a home of reason but I have said nothing of the deeper motives which moved us towards the object now accomplished. What is the reason or motive which has made it so desirable for us to see Down House become a permanent sanctuary for Darwinian pilgrims? We are probably moved by diverse reasons and motives. Let me state my own case. My first visit to Down House made an indelible impression on my memory. I obtained a background for a mental picture in which the living Darwin moved, experimented, thought and suffered—such a picture as no verbal description can give. My gain was that which a historian knows when he has made a personal survey of a battle-field where great issues have been determined. A student will never know Darwin until he knows Down. To see Down is the best way to obtain an introduction to Darwin's works. You can not separate science from personality. If this was my case when I visited Down, I who was born and bred in Darwin's lifetime, what would have been the case of students born centuries hence—if a public-spirited and generous man had not stepped in and saved Darwin's home for them? Its preservation may be regarded by some as a luxury, but are not luxuries the necessary embroideries of a full life?

It is usually supposed that science and sentiment are incompatibles; it certainly is the case that when sentiment enters a laboratory by the back door, science takes the earliest opportunity to escape by the front. And yet men of science, in spite of a wide-spread belief to the opposite, are really sentimental beings at heart. What we do to-day is an open acknowledgment that sentiment has a place in science. We are not dedicating a monument to Darwin's memory; he needs no monument; his works will outlast anything we can build in stone. What we are doing to-day is giving way to a sentiment—a de-

sire, an impulse, an appetite, call it what you will—which is deeply implanted in human nature. What is the impulse which compels grown men and women to besiege the homes and invade the lives of famous authors? Is it not a commendable but misplaced form of curiosity or hero-worship? Is not the prime motive which moves us to-day akin to that which whets our appetite for personal details of the men and women who achieve prominence in politics, art, literature, sport and society? I fear it is. We must confess that we are neither better nor worse than other men. Only in our case there is an excuse—the object of our curiosity is an altogether exceptional man—Charles Darwin. To know him you must first know Down, and for our own good we can not know too much of either.

Dr. R. Anthony, professor of comparative anatomy, Museum National d'Histoire Naturelle, Paris, who occupies the chair formerly held by the immortal Cuvier, conveyed the congratulations of French science.

Dr. Joseph Leidy, II, representing the American Association for the Advancement of Science, spoke briefly for American science. In the course of his remarks he referred to an incident in the life of Darwin which linked America with Down House, which upon this historic occasion may not inappropriately be referred to as bearing upon the early history of science in the United States and Great Britain.

In December, 1859, the first publication of Darwin's "Origin of Species" reached America. Upon the confines of this very spot where the speaker stood, Darwin, in February, 1860, wrote to Joseph Leidy, the American naturalist, the following letter:

DOWN, BROMLEY, KENT.

MARCH 4TH.

Dear Sir:

I received a few days ago your note of December 10th and your most generous present of a whole bundle of your publications which I value most highly and am extremely glad to possess.

Your note has pleased me more than you could readily believe; for I have during a long time heard all good judges speak of your palaeontological labours in terms of the highest respect. Most palaeontologists (with some few good exceptions) entirely despise my work: consequently approbation from you has gratified me much. All the older geologists (with the one exception of Lyell whom I look at as a host in himself) are even more vehement against the modification of species than are even the palaeontologists. I have, however, been equally surprised and pleased at finding that several of the younger geologists, who are now doing such good work in our geological survey, go with me, and are as strong as I can be on the imperfections of the geological record. Your sentence that you have some interesting facts "in support of the doctrine of selection which I shall report at a favourable opportunity" has delighted me even more than the rest of your note. I feel convinced that, though as long as I have strength I shall go on working on this subject, yet that the sole way of getting my views partially accepted will be by sound workers showing that they partially accept them. I say partially, for I have never for a moment doubted that though I can not see my errors, that much in my book will be proved erroneous. Pray forgive this egotistical note and with cordial thanks for your letters and kind present, believe me My Dear Sir, with sincere respect,

Yours obliged

CHARLES DARWIN

In March, 1860, upon the recommendation of Joseph Leidy and Isaac Lea, the conchologist, Darwin was elected a corresponding member of the Philadelphia Academy of Natural Science. Upon the announcement of his election, he wrote Sir Charles Lyell:

MAY 8, 1860.

This morning I got a letter from the Academy of Sciences of Philadelphia announcing that I am elected a correspondent. It shows that some naturalists there do not think me such a scientific profligate as many think me here.

(Signed) CHARLES DARWIN

To the Philadelphia Academy of Natural Sciences, in all probability, belongs the honor of having been the first foreign society to accord this great work official recognition. That Darwin was not unappreciative of the support accorded him by his American friends, this bit of correspondence will attest. The researches in America, in geology and paleontology, which preceded the publication of the "Origin," to be followed in succeeding decades by a whole galaxy of younger investigators, must always stand out as America's contribution towards eliminating that imperfection of the geological record which so disturbed the mind of the great emancipator, Charles Darwin.

We wish, therefore, to forge still stronger this chain which links American science with Down House and this memorial. It is fitting, therefore, that the bust of Charles Darwin, the work of the gifted sculptor, Charles L. Hartwell, R. A., now on temporary deposit in the Royal Academy, should be placed in this shrine to remain for all time as a gift to the British nation, in memory of those American naturalists who came to the support of Charles Darwin upon the publication in 1859 of the "Origin of Species."

To the list of treasures deposited at Down House, in the study in which Darwin wrote the "Origin of Species," there is seen the high chair in which he sat, using as a desk a board placed across his knees. In the center of the room is his work table, and among other relics are his pistols, the telescope he used during the voyage of the *Beagle*, his geological hammer, microscope and many other scientific instruments, the snuff jar which Darwin kept, not in the study but in the hall, in the vain hope of breaking himself of the habit. In addition, there are to be added the fifty-

eight original Darwin letters known as the Müller collection, which is the gift of Professor Henry Fairfield Osborn, president of the American Museum of Natural History, New York.

Nor should we overlook the reference of a contemporary to an important part of the afternoon's proceeding, the "pious" pilgrimage made by every visitor to the kitchen garden and experimental greenhouses, and to the plantation with its "sand" walk where Darwin paced up and down every day swinging his iron-shod stick and meditating on his work.

JOSEPH LEIDY, II

OBITUARY

RECENT DEATHS

JOHN STERLING KINGSLEY, of Berkeley, California, since 1921 emeritus professor of zoology at the University of Illinois, died on the steamship *President Taft,* three days out of Yokohama, and burial was made at sea. Mr. Kingsley, with his daughter, Miss Mary E. Kingsley, was on a trip around the world.

DR. EDWARD BEECH CRAFT, executive vice-president of the Bell Telephone Laboratories, died on August 21 at the age of forty-seven years.

DR. HARRY C. FRANKENFIELD, meteorologist in charge of the river and flood division of the Weather Bureau, died in Washington, D. C., on July 29 as a result of injuries received when struck by an automobile on July 22. One of his most notable contributions to meteorological science was the development of numerical computations by which the flood stages of rivers at different points may be forecast days in advance. Dr. Frankenfield was in his sixty-seventh year.

DR. PETER A. YODER, chemist and sugar-cane technologist in the bureau of plant industry of the U. S. Department of Agriculture, died on July 20 at the age of sixty-two years.

THE death is announced of M. Auguste Lebeuf, since 1903 director of the Observatory of Besançon and a correspondent of the Paris Academy of Sciences.

SCIENTIFIC EVENTS

SCIENTIFIC RESEARCH IN INDIA

THE *London Times Educational Supplement* reports that the Inter-University Board, India, has published a pamphlet showing the facilities for scientific research at Indian universities. This follows a similar pamphlet issued a year ago on the corresponding facilities for Oriental studies. It is interesting to note that, while seventeen chartered and Indian state universities supplied information for the first pamphlet, the number of replies in respect of scientific research is limited to thirteen. The deduction to be drawn is that no definite arrangements are made for scientific research at the remaining universities. It may be noted, however, that, whereas the first pamphlet gave in an appendix some particulars of Oriental research facilities at a few extra-university institutions, such as that at Poona founded by the late Sir R. G. Bhandarkar, the present pamphlet does not include within its scope either the All-India College of Science at Bangalore or the Bose Research Institute at Calcutta.

The reply from Dacca sets forth a number of material advantages for students, among them being reasonable cost, a healthy climate, excellent hostel accommodation, splendid playing-fields, provision for games, students' societies of all kinds and careful medical attendance and supervision. It is added that since the university is residential, the students have the advantage of coming into close touch with the teachers under whom they wish to carry on their investigations.

The Lucknow University, which like Dacca University, came into existence in 1921, claims that its botany department has an advantage not possessed at any other seat of learning in India—that it has on the staff two specially trained men in their subjects, who are both D.Sc.'s of London University. Fossil botany and soil science are subjects in which research is being mainly, if not solely, carried out by this department among the Indian universities. Special attention is being devoted to one aspect of the subject—namely, the coordination of academic work with agricultural and applied botany (including industrial and economic botany). Some of the researches now being carried on in the department have practical bearing on important Indian agricultural problems. The Royal Commission on Indian Agriculture, while recommending that postgraduate training should be essential for candidates from the provincial agricultural colleges seeking higher posts in the agricultural departments, held that such training should ordinarily be given at the Pusa Research Institute, "which, in present conditions, is the only institution in India in which facilities for higher instruction in all branches